

What is claimed is:

1. A method of producing a lyocell multi-filament for a tire cord, comprising:

5        i) dissolving mixed powder of cellulose and polyvinyl alcohol in a mixed solvent of N-methyl morpholine N-oxide and water to prepare a dope;

10        ii) extruding the dope using a spinning nozzle including orifices through air gaps into a conical upper coagulation bath to coagulate the dope to produce a multi-filament, said orifices each having a diameter (D) of 100 to 300  $\mu\text{m}$ , a length (L) of 200 to 2400  $\mu\text{m}$ , and a ratio of the length to the diameter (L/D) of 2 to 8, and being spaced apart from each other at intervals of 2.0 to 5.0 mm;

15        iii) feeding the multi-filament through a lower coagulation bath to a washing bath, and washing the multi-filament; and

20        iv) drying and oiling multi-filament and winding the resulting multi-filament.

25        2. The method as set forth in claim 1, wherein polyvinyl alcohol of the mixed powder of cellulose and polyvinyl alcohol has a degree of polymerization of 1000 to 4000, and the mixed powder contains 0.5 to 30 wt% polyvinyl alcohol.

3. The method as set forth in claim 1, wherein the air gaps are spaced apart from each other at intervals of 20 to 300 mm, cooling air at 5 to 20°C is fed into the air gaps, and the relative humidity (RH) of each of the air gaps is maintained from 10 to 50 %.

4. The method as set forth in claim 1, wherein the spinning nozzle comprises 500 to 1500 orifices.

5. A lyocell multi-filament having tenacity of 5 to 10 g/d, elongation of 3 to 13 %, modulus of 200 to 400 g/d, birefringence of 0.038 to 0.050, crystallinity of 40 to 52 %, shrinkage of -0.5 to 3 %, strength maintenance after a high temperature and saturated vapor treatment of 90 % or higher, and fineness of 1000 to 2500 deniers.

6. The lyocell multi-filament as set forth in claim 5, wherein elongation is 0.5 to 4.0 % at a load of 4.5 kg.

7. The lyocell multi-filament as set forth in claim 5, wherein a load at break is 5.0 to 25.0 kg.

8. A tire cord comprising the lyocell multi-filament according to any one of claims 5 to 7.

9. A dip cord for tire cords produced using the tire cord according to claim 8.

5        10. The dip cord as set forth in claim 9, having fineness of 3000 to 6000 deniers, twist constant of 0.67 to 0.85, and a load at break of 14.0 to 28.0 kg.

10       11. A tire for automobiles comprising the lyocell multi-filament according to any one of claims 5 to 7.

12. A tire comprising the dip cord according to claim 9.